THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 25

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte BEAT G. KEEL
and FRANK E. STAGEBERG

Appeal No. 1996-3811
Application 08/188,078[1]

ON BRIEF

Before BARRETT, KRASS, and FRAHM, Administrative Patent Judges.

BARRETT, Administrative Patent Judge.

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[1] Application for patent filed January 27, 1994, entitled "Mo-Au Gold Seedlayer In Thin Film Heads," which is a continuation-in-part of PCT Application PCT/US93/11571, filed November 23, 1993.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the final rejection of claims 1-19.

We reverse.

BACKGROUND

The invention is directed to a thin film head and method of making such a head, wherein seedlayers which provide a bond to both the underlayer and the magnetic material of the pole are formed of non-magnetic material.

When writing data to a disk, write current in a coil orients magnetic domains in the pole magnetic material so that the poles generate a desired magnetic field. When the write current is removed, the magnetic domains should return to a relaxed or stable state. However, in some cases the write current causes an irreversible orientation of magnetic domains in the magnetic material which causes distortion in read signals generated by the head during a subsequent read operation. Appellants state that they discovered that the magnetic seedlayers increase external magnetic force on the magnetic layers, thereby increasing the likelihood that the head will not return to a stable state following a write

excitation. The claimed invention requires two non-magnetic seedlayers abutting respective top and bottom pole pieces.

Claim 1 is reproduced below.

1. A thin film head/slider assembly comprising:

a substrate;

a first non-magnetic seedlayer supported by the substrate;

a bottom magnetic core piece positioned over and contacting the first non-magnetic seedlayer;

a second non-magnetic seedlayer;

a top magnetic core piece positioned over and contacting the second non-magnetic seedlayer; and

a gap comprising a non-magnetic material sandwiched between at least a portion of the bottom core piece and at least a portion of the second non-magnetic seedlayer.

The Examiner relies on the following prior art:

Kaminaka et al. (Kaminaka)	4,716,484	December 29, 1987
Cohen et al. (Cohen)	5,059,278	October 22, 1991
Frey et al. (Frey)	5,333,086	July 26, 1994 (filed March 29, 1993)

Claims 1-3, 5-7, 9, 12-15, and 17-19 stand rejected under 35 U.S.C. § 103 as being unpatentable over Kaminaka and Frey. The Examiner finds that figure 5 of Kaminaka discloses a thin film head having a substrate (X1, X2), a first seedlayer supported by the substrate (electrode 26), a bottom magnetic core piece positioned over and contacting the first magnetic seedlayer (lower magnetic core 16), a second magnetic seedlayer (electrode 44), a top magnetic

core piece (upper magnetic core 41), and a gap comprising a non-magnetic material sandwiched between a portion of the core bottom piece and the second non-magnetic seedlayer (non-magnetic insulating layer 37). The Examiner finds the following differences between Kaminaka and the claimed subject matter (Final Rejection, page 3): "Kaminaka et al does not (i) explicitly show that the seedlayers are non-magnetic, or (ii) teach that the non-magnetic gap is of the same composition as the seedlayer." The Examiner finds that figure 7 of Frey discloses a thin film head having a non-magnetic seedlayer 212 on which pole 222 is deposited. The Examiner concludes that it would have been obvious to make the seedlayers of Kaminaka from a non-magnetic material as shown in Frey "to prevent the seedlayer from acting like an additional (third) magnetic pole, thus ensuring that the readback waveform is not perturbed (see Frey et al: column 5, line 63 - column 6, line 2)" (Final Rejection, pages 4-5). The Examiner also concludes that it would have been obvious to make the non-magnetic gap of the head in Kaminaka to have the same composition as the seedlayer "to reduce the number of materials required to produce the head

by making the layers (both non-magnetic by necessity) from the same substance" (Final Rejection, page 4).

Claims 4, 8, 10, 11, and 16 stand rejected under 35 U.S.C. § 103 as being unpatentable over Kaminaka, Frey, and Cohen.

We refer to the Final Rejection (Paper No. 12), the Examiner's Answer (Paper No. 17) (pages referred to as "EA__"), and the Supplemental Examiner's Answer (Paper No. 20) (pages referred to as "SEA__") for a statement of the Examiner's position and to the Appeal Brief (Paper No. 16) (pages referred to as "Br__") and the Reply Brief (Paper No. 19) (pages referred to as "RBr__") for a statement of Appellants' arguments thereagainst.

OPINION

Grouping of claims

Appellants group claims 1-16 to stand or fall together and claims 17-19 to separately stand or fall together (Br4). Thus, it is only necessary to address the broadest independent claim and the corresponding one of dependent claims 17-19. Claim 1 is considered representative of claims 1-16.

Appellants argue that the Examiner erroneously indicates a grouping in accordance with the issues, and not the grouping of claims as set forth by Appellants (RBr1). We agree. The Examiner's statement that claims 1-3, 5-7, 9, 12-15, and 17-19 do not stand or fall together is in error because Appellants have only argued limitations found in the independent claims 1, 5, and 9 and a limitation found in claims 17-19. It is not necessary to address each claim separately. The Examiner's statement that claims 4, 8, 10, 11, and 16 stand or fall together is in error because Appellants have not argued any of the claims separately. The source of the problem is evident in the Examiner's statement that (SEA3): "Declaring claims 1-16 to be a particular grouping as proposed by Appellant is not appropriate because these claims span two separate grounds of rejection." However, claims 4, 8, 10, 11, and 16 in the second rejection are not argued separately and are dependent on claims rejected in the first rejection; i.e., Appellants have elected to have all the dependent claims in the second rejection stand or fall with the broadest of the independent claims in the first rejection. There is nothing wrong with

this grouping and, in fact, it simplifies the analysis. Appellants are not trying to gain an advantage by grouping unlike claims together. Thus, we stay with Appellants' grouping.

Obviousness

Appellants argue (Br5, Sec. A) that while Kaminaka is silent as to the material forming the seedlayer, one of ordinary skill in the art would presume from Frey's disclosure that "use of a magnetic seed layer is conventional in formation of a two-pole thin film inductive head" (Frey, col. 5, lines 63-65) and from Appellants' statement that the prior art as of 1993 used magnetic seedlayers, that Kaminaka's seedlayers are magnetic. Frey's disclosure that magnetic seedlayers were conventional does not prove that all seedlayers were magnetic. In fact, the existence of "conventional" magnetic seedlayers might suggest that "non-conventional" non-magnetic seedlayers were known, especially since Frey does not disclose any non-magnetic seedlayer materials, which suggests that such materials were known to those of ordinary skill in the art. However, we have no evidence on this record that

non-magnetic seedlayers were used in heads other than the type shown in Frey. Appellants' statement that the prior art known to Appellants used magnetic seedlayers does not prove that all seedlayers were magnetic since an applicant is not necessarily aware of all relevant prior art. However, Kaminaka is silent about the material of the seedlayer; thus, it does not disclose or suggest non-magnetic seedlayers.

Appellants argue (Br8, Sec. C) that even if one were to add Frey's wedge and bottom non-magnetic seedlayer, the combination would still not disclose a non-magnetic seedlayer for the upper pole piece. The Examiner states that the rejection is not based on the incorporation of the wedge of Frey into Kaminaka, but that "Frey et al is relied upon only for teaching that magnetic seedlayers can perturb the readback waveform and that non-magnetic seedlayers can alleviate such a problem" (EA8). We disagree with the Examiner's findings about the teachings of Frey as discussed infra. In our opinion, Frey suggests modifying the bottom pole of Kaminaka to have an angle for the purpose of reducing the secondary pulse, which would require the

non-magnetic seedlayer and wedge. However, we agree with Appellants that Frey does not suggest modifying the non-magnetic seedlayer for the upper pole piece.

Appellants argue (Br5-7, Sec B) that Frey's only purpose for providing a non-magnetic seedlayer is to prevent the portion 213 of the seedlayer, which is separated from pole 222 by a wedge of non-magnetic material 215A, from forming a third pole and, thus, Frey provides no reason to make Kaminaka's seedlayers non-magnetic because there is no danger of creating a third pole. "More particularly, since both of Kaminaka's magnetic seedlayers are contiguous [to] their respective poles, there is no danger that either might act as a third pole separated from the bottom pole by insulating material." (Br6.)

The Examiner responds (EA7-8):

> The Examiner disagrees - by adding a third magnetic body at the air bearing surface, a third pole would be formed regardless of the separation between the magnetic bodies. The "perturbing" effect may be decidedly less pronounced if a wedge is not included (i.e. if the magnetic bodies are close together or even touching), but this does not mean that adding a magnetic body will not perturb the waveform as taught in Frey et al.

The Examiner stated in the Final Rejection "that creating the seedlayer from a non-magnetic material would prevent the seedlayer from acting like an additional magnetic pole, thus ensuring that the readback waveform is not perturbed" (FR6), which would be apparent whether or not a "wedge" exist.

The Examiner's reasoning presents a factual question of what Frey disclosed to one of ordinary skill in the art. Motivation is a question of fact. Frey discloses (col. 5, line 66, to col. 6, line 2): "[P]ortion 213 of the seed layer (under wedge 215A) will extend out to the air bearing surface of the finished head and will act as a third pole if the layer is magnetic. This would perturb the readback waveform." We agree with Appellants that this teaches making the seedlayer from non-magnetic material only because there is a wedge (gap) between the seedlayer and the pole. If the wedge were not present, even a magnetic seedlayer could not form a third pole as stated by the Examiner because the seedlayer would form part of the pole as in a conventional head. There is no analogous separation between the seedlayers and the magnetic core pieces in Kaminaka that would require the use of a non-magnetic seedlayer.

Frey teaches that shaping the magnetic poles at an acute angle helps preserve the waveform by lengthening the secondary pulses in the readback signal and, hence, reducing the significance of the secondary pulses within a readback window waveform (col. 2, line 65, to col. 3, line 5; figure 4). We find no factual evidence in Frey to support the Examiner's finding that a magnetic seedlayer formed in contact with a magnetic pole may perturb the waveform more than the magnetic pole itself. Frey does not teach or suggest that the thickness of the pole perturbs the waveform. Therefore, it appears that the Examiner's reasoning is based on hindsight.

The motivation in the prior art to combine the references does not have to be identical to that of the applicant to establish obviousness. In re Dillon, 919 F.2d 688, 693, 16 USPQ2d 1897, 1901 (Fed. Cir. 1990) (in banc), overruling in part In re Wright, 848 F.2d 1216, 6 USPQ2d 1959 (Fed. Cir. 1988). Thus, the fact that Frey does not disclose the problem discovered by Appellants (that the magnetic seedlayer increases the external magnetic force on the magnetic layers, thereby increasing the likelihood

that the head will not return to a stable state following a write excitation) does not necessarily bar a conclusion of obviousness. Nevertheless, here we find no teaching or suggestion in Frey that would have led one having ordinary skill in the art to make the seedlayers in Kaminaka from non-magnetic material.

For the reasons stated above, we conclude that the Examiner has failed to establish a prima facie case of obviousness. Cohen does not cure the deficiency of the combination of Kaminaka and Frey. The rejections of claims 1-19 are reversed.

REVERSED

ERROL A. KRASS Administrative Patent Judge	)	
LEE E. BARRETT Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
ERIC S. FRAHM Administrative Patent Judge	)	

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